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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant : Brian Sullivan et al.
 Ser. No. : 09/750,027
 Filed : December 29, 2000
 Title : ELECTRONIC INFORMATION CACHING

Art Unit : 2144
 Examiner : Tam T. Phan
 Confirmation No.: 6434

Mail Stop Appeal Brief – Patents
 Commissioner for Patents
 P.O. Box 1450
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BRIEF ON APPEAL**(1) Real Party in Interest**

America Online, Inc., the assignee of this application, is the real party in interest.

(2) Related Appeals and Interferences

There are no related appeals or interferences.

(3) Status of Claims

Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 are pending in this application, of which claims 62, 67, 71, 75 and 96 are independent. All claims have been rejected, and all claims have been appealed.

(4) Status of Amendments

The claims have not been amended subsequent to the final rejection.

(5) Summary of Claimed Subject Matter

Independent claim 96 is directed toward a method of populating distributed cache within a system in which algorithms are employed to identify and prioritize electronic assets to be temporarily stored within the distributed cache. See Specification at page 3, lines 12-16 and 22-31; page 8, lines 1-18; FIG. 1 (steps 1010-1040); and FIG. 2d (showing servers 110, 120a and 120b). The method includes, *inter alia*, measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests. See Specification at page 2, lines 5-16; page 3,

08/31/2005 SZEWDIE1 00000046 09750027
 01 FC:1401 500.00 DP
 08/31/2005 TLUU11 00000046 09750027
 01 FC:1401 500.00 DP

08/31/2005 SZEWDIE1 00000046 09750027
 01 FC:1401 500.00 DP

Appendix of Claims

1. (Cancelled)
2. The method of claim 62, further comprising:
determining whether the electronic information is accessible to the access requestors from the storage medium,
wherein the access requestors are provided with access to the electronic information from the data source only if the electronic information is not accessible to the access requestors from the storage medium.
3. The method of claim 62 wherein the storage medium is more geographically proximate to the access requestors than the data source such that the storing includes storing the electronic information on a medium that is more geographically proximate to the access requestors than the data source.
4. The method of claim 62 wherein the storage medium is more electronically proximate to the access requestors than the data source such that the storing includes storing the electronic information on a medium that is more electronically proximate to the access requestors than the data source.
5. (Cancelled)
6. The method of claim 62 wherein the data source resides on a central server and the storage medium resides on a distributed server such that the storing includes duplicating the electronic information from the central server to the distributed server.
7. The method of claim 87 wherein the demand is anticipated based on at least one of past and current requests for access to the same electronic information by the access requestors.

8. (Cancelled)

9. The method of claim 87 wherein the demand is anticipated based on at least one of current and past requests for access to related electronic information by the access requestors.

10. (Cancelled)

11. The method of claim 87 wherein anticipating the demand of the access requestors for access to the electronic information includes measuring a number of requests for the electronic information, and comparing the number of requests to a threshold.

12. The method of claim 87 wherein anticipating the demand of the access requestors for access to the electronic information includes measuring a frequency of requests for access to the electronic information.

13. The method of claim 12 wherein the size of the electronic information is a file size of the electronic information and the anticipated demand for the electronic information is based on the frequency of requests for the electronic information.

14-16. (Cancelled)

17. The system of claim 67, further comprising:
an accessibility determination software module that determines whether the electronic information is accessible to the access requestors from the storage medium and provides access to the electronic information from the data source only if the electronic information is not accessible to the access requestors from the storage medium.

18. The system of claim 67 wherein the storage medium is more geographically proximate to the access requestors than the data source.

19. The system of claim 67 wherein the storage medium is more electronically proximate to the access requestors than the data source.

20. (Cancelled)

21. The system of claim 67 wherein the data source resides on a central server and the storage medium resides on a distributed server.

22. The system of claim 91 wherein the anticipating software module is structured and arranged to determine the anticipated demand based on at least one of past and current requests for access to the same electronic information by the first access requestors.

23. (Cancelled)

24. The system of claim 91 wherein the anticipating software module is structured and arranged to determine the anticipated demand based on at least one of past and current requests for access to related electronic information by the access requestors.

25. (Cancelled)

26. The system of claim 91 wherein the anticipating software module is structured and arranged to measure a frequency of requests for access to the electronic information.

27. The system of claim 26 wherein the determination software module includes:
a size module that determines a file size of the electronic information; and
an assigning module that assigns a cache value to the electronic information based on the file size and the anticipated demand,
wherein the determination software module determines to store the electronic information based on the cache value of the electronic information.

28-30. (Cancelled)

31. The computer readable medium of claim 71, further comprising:
a gating code segment for determining whether the electronic information is
accessible to the access requestors from the storage medium and for providing access to the
electronic information at the data source only if the electronic information is not accessible to the
access requestors from the storage medium.

32. The computer program of claim 71 wherein the storage medium is more
geographically proximate to the access requestors than the data source.

33. The computer program of claim 71 wherein the storage medium is more
electronically proximate to the access requestors than the data source.

34. (Cancelled)

35. The computer program of claim 71 wherein the data source resides on a central
server and the storage medium resides on a distributed server.

36. The computer program of claim 95 wherein the second code segment is structured
and arranged for determining the anticipated demand based on at least one of past and current
requests for access to the same electronic information by the access requestors.

37. (Cancelled)

38. The computer program of claim 95 wherein the second code segment is structured
and arranged for determining the anticipated demand based on at least one of past and current
requests for access to related electronic information by the access requestors.

39. (Cancelled)

40. The computer program of claim 95 wherein the second code segment is structured and arranged to measure a frequency of requests for access to the electronic information.

41. The computer program of claim 71 wherein the third code segment further comprises:

a sizing code segment that determines a file size of the electronic information; and
an assigning code segment that assigns a cache value to the electronic information based on the file size and the anticipated demand,

wherein the third code segment determines to store the electronic information based on the cache value of the electronic information.

42. The computer program of claim 95 wherein the second code segment is structured and arranged to measure a number of requests for access to the electronic information and to compare the number of requests to a threshold.

43-52. (Cancelled)

53. The method of claim 75, further comprising:

determining whether the electronic information is accessible to the first access requestors from the storage medium,

wherein the first access requestors are provided with access to the electronic information from the data source only if the electronic information is not accessible to the first access requestors from the storage medium.

54. The method of claim 75 wherein the storage medium is more geographically proximate to the first access requestors than the data source such that the duplicating includes duplicating the electronic information on a medium that is more geographically proximate to the first access requestors than the data source.

55. The method of claim 75 wherein the storage medium is more electronically proximate to the first access requestors than the data source such that the duplicating includes duplicating the electronic information on a medium that is more electronically proximate to the first access requestors than the data source.

56. The method of claim 75 wherein the storage medium provides faster completion of an access request than the data source such that the providing includes providing faster access to the electronic information by the first access requestors.

57. The method of claim 75 wherein the demand is further anticipated based on past requests for access to other electronic information by a plurality of second access requestors, who may be different than the first access requestors.

58-60. (Cancelled)

61. The method of claim 75 wherein the demand is further anticipated based on criteria unrelated to past access requests for the electronic information.

62. A method for making electronic information more readily available to one or more access requestors, the method comprising:

identifying for transport electronic information stored at a data source;

transporting the identified electronic information from the data source to a requesting access requestor;

anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information;

determining, based on a size of the electronic information and the anticipated demand, to store the already identified and transported electronic information on a storage medium that is more accessible to the access requestors than the data source; and

storing the transported electronic information on the storage medium.

63. The method of claim 62 wherein the electronic information is identified for transport based on a request of the requesting access requestor to access the electronic information.

64. The method of claim 62 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is common to multiple access requestors.

65. The method of claim 62 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is retrieved from several access requestors.

66. The method of claim 62 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is related to none of the access requestors.

67. A system for making electronic information more readily available to one or more first access requestors, the system comprising:

an identification software module that identifies for transport electronic information stored at a data source;

a transport software module that transports the electronic information from the data source to a requesting first access requestor;

an anticipating software module that anticipates a demand of the first access requestors for access to the electronic information based at least on non-electronic information related to the electronic information;

a determination software module that determines, based on a size of the electronic information and the anticipated demand, to store the already identified and transported electronic information on a storage medium that provides the first access requestors with more efficient access to the electronic information than the data source; and

a storage module that stores the transported electronic information on the storage medium.

68. The system of claim 67 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is common to multiple access requestors.

69. The system of claim 67 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is retrieved from several access requestors.

70. The system of claim 67 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is related to none of the access requestors.

71. A computer readable medium having embodied thereon a computer program for processing by a computer, the computer program comprising:

a first code segment for transporting electronic information stored at a data source based on a request of at least one access requestor to access the electronic information;

a second code segment for anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information;

a third code segment for determining, based on a size of the electronic information and the anticipated demand, to store the already identified and transported electronic information on a storage medium that is more accessible to the access requestors than the data source; and

a fourth code segment for storing the transported electronic information on the storage medium.

72. The computer program of claim 71 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is common to multiple access requestors.

73. The computer program of claim 71 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is retrieved from several access requestors.

74. The computer program of claim 71 wherein anticipating the demand based at least on information that is not particular to any single access requestor comprises anticipating the demand based on information that is related to none of the access requestors.

75. A method for making electronic information more readily available to one or more first access requestors based on an anticipated demand for the electronic information, the method comprising:

anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information;

determining to duplicate electronic information from a data source to a storage medium that is more accessible to the first access requestors based on a size of the electronic information and on the anticipated demand;

accessing the electronic information stored on the data source; and

duplicating the electronic information to the storage medium.

76. The method of claim 75 wherein the non-electronic information is indicative of a popularity of a topic associated with the electronic information.

77. The method of claim 76 wherein the popularity is the popularity for a class of access requestors.

78. The method of claim 75 wherein the non-electronic information is indicative of past requests for information similar to the electronic information.

79. The method of claim 78 wherein the past requests for information are past requests of a class of access requestors.

80. The method of claim 79 wherein the class of access requestors comprises the first access requestors.

81. The method of claim 62 wherein the access requestors comprise a class of access requestors.

82. The system of claim 67 wherein the access requestors comprise a class of access requestors.

83. The computer program of claim 71 wherein the access requestors comprise a class of access requestors.

84. The method of claim 62 wherein the non-electronic information is indicative of a popularity of a topic associated with the electronic information.

85. The method of claim 84 wherein the popularity is the popularity for a class of access requestors.

86. The method of claim 62 wherein the non-electronic information is indicative of past requests for information similar to the electronic information.

87. The method of claim 62 wherein anticipating a demand of the access requestors for access to the electronic information further comprises anticipating the demand of the access

requests for access to the electronic information based on information related to the electronic information that is not particular to any single access requestor.

88. The system of claim 67 wherein the non-electronic information is indicative of a popularity of a topic associated with the electronic information.

89. The system of claim 88 wherein the popularity is the popularity for a class of access requestors.

90. The system of claim 67 wherein the non-electronic information is indicative of past requests for information similar to the electronic information.

91. The system of claim 67 wherein the anticipating software module is structured and arranged to anticipate the demand of the access requests for access to the electronic information based on information related to the electronic information that is not particular to any single access requestor.

92. The computer program of claim 71 wherein the non-electronic information is indicative of a popularity of a topic associated with the electronic information.

93. The computer program of claim 92 wherein the popularity is the popularity for a class of access requestors.

94. The computer program of claim 71 wherein the non-electronic information is indicative of past requests for information similar to the electronic information.

95. The computer program of claim 71 wherein the second code segment is structured and arranged for determining the anticipated demand based on information related to the electronic information that is not particular to any single access requestor.

96. In a system in which algorithms are employed to identify and prioritize electronic assets to be temporarily stored within distributed cache, a method of populating the distributed cache, comprising:

receiving a first electronic asset to be made available for request by a networked user;

measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information;

determining to duplicate the first electronic asset from a data source to a storage medium that is more accessible to the networked user based on a size of the electronic information and on the anticipated demand;

accessing the first electronic asset stored on the data source; and

duplicating the first electronic asset to the storage medium.

97. The method of claim 96 wherein the non-electronic information is indicative of a popularity of a topic associated with the electronic information.

98. The method of claim 97 wherein the popularity is the popularity for a class of access requestors.

99. The method of claim 96 wherein the non-electronic information is indicative of past requests for information similar to the electronic information.

As such, Pirolli, Malkin, nor any proper combination of the references describes or suggests measuring an anticipated demand for an first electronic asset based on criteria including non-electronic information. Necessarily, Pirolli, Malkin, nor any proper combination of the references do not describe measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information, as recited in claim 96.

For at least these reasons, the § 103 rejection of claim 96 and claims 97-99, which depend directly or indirectly from claim 96, should be reversed.

For at least the reasons described above, the § 103 rejection of claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 should be reversed.

c. Conclusion

For the foregoing reasons, the rejections should be reversed.

In accordance with appellant's Notice of Appeal filed June 30, 2005, appellant submits this Appeal Brief.

The brief fee of \$500 is enclosed. Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: August 30, 2005

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line 29 to page 4, line 17; and page 6, lines 5-8. The criteria includes non-electronic information. See Specification at page 3, lines 19-22; and page 4, lines 13-16. Non-electronic information may be indicative of popularity of a topic associated with the electronic information (as recited in claim 97), may be the popularity for a class of access requestors (as recited in claim 98), or may be indicative of past requests for information similar to the electronic information (as recited in 99). See Specification at page 3, lines 19-22.

Each of independent claims 62, 67 and 71 are directed to making electronic information more readily available to one or more access requestors. See Specification at page 8, lines 19-20 and FIG. 1 (steps 1010-1040). The claims include anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. See Specification at page 2, lines 5-9; page 3, lines 19-22; and page 4, lines 11-14. The claims also include identifying for transport electronic information stored at a data source, transporting the identified electronic information from the data source to a requesting access requestor, determining, based on a size of the electronic information and the anticipated demand, to store the already identified and transported electronic information on a storage medium that is more accessible to the access requestors than the data source, and storing the transported electronic information on the storage medium. See Specification at page 6, lines 1-10; page 6, line 30 to page 7, line 6; page 7, lines 13-50 and FIG. 1 (steps 1010-1040).

Independent 75 is directed a method for making electronic information more readily available to one or more first access requestors based on an anticipated demand for the electronic information. See Specification at page 2, lines 5-9 and FIG. 1 (steps 1010-1040). The method includes anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information. See Specification at page 2, lines 5-9; page 3, lines 19-22; and page 4, lines 13-16. Non-electronic information may be indicative of popularity of a topic associated with the electronic information (as recited in claim 76), may be the popularity for a class of access requestors (as recited in claim 77), or may be indicative of past requests for information similar to the electronic information (as recited in 78). See Specification at page 3, lines 19-22. The method also includes determining to duplicate electronic information from a data source to a storage medium that is more accessible to the first access requestors based on a size of the electronic information and on the anticipated

demand, accessing the electronic information stored on the data source, and duplicating the electronic information to the storage medium. See Specification at page 5, lines 4-9 and page 6, lines 1-10.

(6) Grounds of Rejection

a. Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 under 35 U.S.C. § 102

Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 were rejected under 35 U.S.C. § 102 as being anticipated by Burns (U.S. Patent No. 6,324,182).

b. Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 40-42, 53-57 and 61-99 under 35 U.S.C. § 103

Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 40-42, 53-57 and 61-99 also were rejected under 35 U.S.C. § 103 as being unpatentable over Pirolli (U.S. Patent No. 6,098,064) in view of Malkin (U.S. Patent No. 6,085,193).

(7) Argument

a. Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 are not properly rejected under 35 U.S.C. § 102 as being anticipated by Burns.

Appellant requests reversal of this rejection because Burns does not describe or suggest the subject matter of the independent claims 62, 67, 71, 75 and 96, as described more fully below. For example, Burns does not describe or suggest anticipating a demand of the access requestors for access to electronic information based at least on non-electronic information related to the electronic information. In the argument below, the independent claims are discussed in the following order: claim 96, claim 75, claim 62, claim 67 and claim 71.

Independent Claim 96 and Dependent Claims 97-99

Independent claim 96 is directed toward a method of populating distributed cache within a system in which algorithms are employed to identify and prioritize electronic assets to be

temporarily stored within the distributed cache. The method includes, *inter alia*, measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests. The criteria includes non-electronic information. Non-electronic information may be indicative of popularity of a topic associated with the electronic information (as recited in claim 76), may be the popularity for a class of access requestors (as recited in claim 97), or may be indicative of past requests for information similar to the electronic information (as recited in 99).

Appellant requests reversal of the rejection to claim 96, as a consequence of four items discussed sequentially below. First, Burns does describe or suggest measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset, that is unrelated to past access requests, and that include non-electronic information, as recited in claim 96. Second, this failure of Burns is not cured by the Examiner's misconstruction of the claim term "non-electronic information" and introduction of the term "metadata" to allegedly support the Examiner's rejection. Third, the failure of Burns also is not cured by an unsupported statement made in the advisory action that Burns discloses pre-fetched caching based on non-electronic criteria and unrelated past requests. Fourth, this failure of Burns is not cured by the rationale provided of how Burns is believed to meet the features of claim 75, which is the portion of Office action that relates to an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset, that is unrelated to past access requests, and that include non-electronic information, as recited in claim 96.

First, turning now to the disclosure of Burns, local service providers schedule delivery of frequently requested content from a content provider prior to a peak time when subscribers are likely to request the content. See Burns at Abstract. Burns discloses monitoring subscriber requests to determine a pattern of which content (i.e., electronic information) is most frequently requested and when, and scheduling a request to send to the content provider for electronic information at an appropriate time. See Burns at col. 9, lines 11-37. See also Burns at col. 8, lines 26-28 and lines 36-40 (disclosing "holding proxy copies of often used and requested target resources" and copying of a target resource provided to a subscriber is cached when "policy rules governing the cache are met").

As such, Burns discloses monitoring electronic communications (e.g., subscriber requests for content) to determine a pattern of requests for particular electronic content. Thus, Burns discloses anticipating a demand for electronic information (i.e., content of a Web pages or a video) based on electronic information (i.e., subscriber requests for the electronic information), and does not disclose anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information, as recited in claim 96.

Moreover, claim 96 recites measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, where the criteria includes non-electronic information. As noted previously, the Office action of March 4, 2005 (and the cited Burns reference) does not specifically address this limitation.

The advisory action of June 24, 2005 maintains that column 8, lines 43-59 of Burns (quoted above) “suggest[s] that the operator could configure the pattern recognizer to record an anticipated demand based on any information and parameters: whether it was the content of the electronic information, the non-electronic information related to the electronic information, past related request or unrelated past request, etc.” Appellant disagrees that Burns’ statement that “[t]he pattern recognizer 116 is also responsive to operator input to allow adjustment or tuning by the operator for specialized analysis” suggests that “the operator could configure the pattern recognizer to record an anticipated demand based on any information and parameters...including non-electronic information related to the electronic information,” as asserted by the Examiner. Notably, the pattern recognizer is an electronic component that operates on electronic information, as described more fully below. Hence, Burns does not describe or suggest in the cited portion, or anywhere else, anticipating demand based on non-electronic information, much less measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information, as recited in claim 96.

Second, the Examiner has misconstrued the claim term “non-electronic information” and introduced the term “metadata” to allegedly support the Examiner’s rejection. Notably, the term

“metadata” does not appear in the claim language or in Burns. As such, the term “metadata” and assertions about its meaning are not relevant to whether Burns discloses the features of claim 96.

In particular, the Office action of March 4, 2005 asserted that “appellants failed to define the terms electronic information and non-electronic information to better distinguish and clarify their meanings. Accordingly, electronic information was interpreted to mean the actual content presented in the electronic information and the non-electronic information was interpreted to mean any metadata that are related to the content of the electronic information.” See Office action of March 4, 2005 at page 18, line 11 to page 19, line 20. Appellant respectfully notes that the recitation of non-electronic information is not indefinite, nor is it rejected as such. The scope of this term is instead unambiguous and the claim scope therefore is clear. Specifically, and facially, non-electronic information is information other than electronic information.

Appellant objects to the rejection of the claims using the term “metadata” that the Examiner has introduced. The term “metadata” does not appear in any of the claims or in any of the applied references (i.e., Burns, Pirolli or Malkin). In the advisory action, the Examiner cites a dictionary definition of metadata for the assertion that metadata is non-electronic information; however, the cited definition is inapposite to whether metadata is electronic or non-electronic. See Office action of June 24, 2005 at page 2, lines 20-22. In particular, the advisory action states:

The previous Office Action interpreted non-electronic information as equivalent to metadata since according to Microsoft Computer Dictionary metadata is defined as “data about data. For example, the title, subject, and size of a file constitute metadata about the file. . . . Since metadata is data that describes the data content (i.e., title, subject, size, etc.), it is obviously the same as the non-electronic information that describes the electronic information.”

Office action of June 24, 2005 at page 2, lines 5-13.

Appellant notes that the dictionary definition used by the Examiner defines metadata functionally (i.e., “describes data content”) and does not indicate a form that metadata may or must take (i.e., whether metadata is non-electronic data). Moreover, the Examiner’s statement that “[s]ince metadata is data that describes the data content (i.e., title, subject, size, etc.), it is obviously the same as the non-electronic information that describes the electronic information” does not necessarily follow from the dictionary definition. As noted above, the dictionary

definition does not indicate whether metadata is electronic or non-electronic in nature. Further, the Examiner's statement is undermined by the reference applied by the Examiner. In particular, the Examiner cites Burns:

For each URL, the hit recorder 112 records hit information in a URL hit database 114. The hit information includes the date/time of the request, the subscriber who made the request, and other information. The hit recorder 112 also triggers a pattern recognizer 116 which draws on information in the URL hit database 114 to detect repetitive access behavior patterns based on subscriber requests. The pattern recognizer 116 performs statistical analyses using hit data from the URL hit database to determine usage patterns that help the local service provider be more responsive to the needs of its clientele. For instance, in the preferred implementation, the pattern recognizer 116 determines which URLs, and hence which Internet resources, are being requested most often and least often, and the time of day when the most requests are received. The pattern recognizer 116 is also responsive to operator input to allow adjustment or tuning by the operator for specialized analysis.

Office action of June 24, 2005 at page 2, lines 5-13 (quoting Burns at col. 8, lines 43-59) (emphasis of Office action retained). Presumably, the hit information is an example of metadata because the hit information includes "the date/time of the request, the subscriber who made the request, and other information," which is data that describes the hit content. However, Burns discloses that the hit information is electronic, as it is stored "in a URL hit database 114." Burns at col. 8, lines 43-44.

Appellant asserts that the metadata need not necessarily be non-electronic and, as such, the interpretation of non-electronic information set forth by the Office action is incorrect. Further, appellant contends that the Examiner has not offered proof that metadata must include non-electronic information. Moreover, appellant objects to the discussion of the term "metadata" in the rejection when the term "metadata" is inapposite to the claim language, and not used in the claims or in any of the applied references.

Importantly, regardless of whether Burns is characterized as disclosing metadata or not, Burns fails to describe or suggest anticipating demand based on non-electronic information, much less measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information, as recited in claim 96.

Third, the advisory action makes an unsupported statement that Burns discloses pre-fetched caching based on non-electronic criteria and unrelated past requests. In particular, the advisory action, without citation, maintains that “Burns … disclosed several embodiments and although, in one embodiment [it] did disclose pre-fetched catching [sic, caching] based on electronic information criteria, [it] also disclosed in [its] other embodiments pre-fetched catching [sic, caching] based on none-electronic information criteria, unrelated past request, etc.” See Office action of June 24, 2005 at page 4, line 9-13. Appellant disagrees for the reasons described above. Moreover, the unsupported statement that Burns discloses pre-fetched caching based on non-electronic criteria and unrelated past requests does not cure Burn’s failure to do so.

Fourth, because the Office actions have not addressed claim 96, appellant responds to arguments made in the Office action regarding claim 75. In particular, in rejecting claim 96, the Office action of March 4, 2005 contended that “the method of populating the distributed cache and its limitations are similar to the method for making electronic information more readily available to one or more first access requestors of claims 75-78 and thus these claims are rejected using the same rationale.” See Office action of March 4, 2005 at page 10, lines 1-4. In furtherance of this position, the advisory action indicated that “claims 96-99 were rejected using the same rationale as claims 75-78” stating “that the passages cited to reject claims 75-78 are applicable to reject claims 96-99.” See Office action of June 24, 2005 at page 4, lines 1-3. Appellant disagrees.

Claims 96 and 75 clearly differ. Even the advisory action acknowledged that the limitations in claims 96-99 differed from the limitations in claims 75-78. See Office action of June 24, 2005 at page 3, lines 20-22. For example, one instance of a divergence between claims 96 and 75 involves recitation by independent claim 96 of measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information. In contrast, independent claim 75 recites anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information.

As can be seen, claims 96-99 are not subsets of features recited by claims 75-78. And despite requests by appellant for an explanation of how Burns is believed to meet the features of

claims 96-99 that are not found in claims 75-78, the Office action and advisory action have merely and cursorily indicated that the portions of Burns applied to claims 75-78 also apply to claims 96-99.

To be clear, the portions of Burns applied to meet claims 75-78 do not address the features of claims 96-99. Rather, as explained below, Burns does not describe or suggest measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information.

Notably, the portions of Burns cited with regard to claim 75 are addressed below in the context of the rejection's rationale in rejecting claim 62. The rejections of claims 62 and 75 cite the same portions of Burns. Compare Office action of March 4, 2005 at page 3, lines 1-15 (rejection of claim 62) with page 7, line 13 to page 8, lines 2 (rejection of claim 75). However, the rejection of claim 62 provides citations to Burns for each claim element, whereas the rejection of claim 75 merely provides a string of citations appended to the end of the claim text.

In addressing claim 62, the Office action of March 4, 2005 contends that Burns discloses "anticipating a demand of the access requestors for access to the electronic information based on at least on non-electronic information related to the electronic information" in portions of columns 8, 9 and 11. See Office action of March 4, 2005 at page 3, lines 6-9 (identifying column 8, lines 41-59; column 9, lines 12-34, and column 11, lines 20-31 and 55-65). As such, the Office action asserts that anticipating a demand based on non-electronic information is disclosed in the cited portions of Burns. Appellant respectfully disagrees, and addresses the three referenced columns of Burns sequentially below.

The first cited portion (column 8) states:

When the request handler 111 receives a request, the local service provider 110 first looks to its own cache memory 124 to determine if a proxy copy of the target resource referenced by the URL is stored locally. The cache memory 124 serves as a quasi-temporary local storage for holding proxy copies of often used and requested target resources. The cache memory 124 can be implemented using different types of memory, including RAM, storage disks (optical magnetic, etc.), and the like. If a proxy copy is stored in the cache memory 124, the target resource is served locally from the cache memory 124. If there is no proxy copy, the local service provider 110 uses the URL request to locate the target resource from a content provider and to request delivery of the target resource over the

Internet. The local service provider 110 passes the target resources on to the requesting subscriber and may also cache the target resource in the cache 124 if the policy rules governing the cache are met.

Burns at col. 8, lines 41-59.

In the second cited portion, Burns discloses that target resources may be stored in the cache 124 if the policy rules governing the cache are met. Burns' policy manager 128 is an electronic component of a local Internet service provider system and "defines and administers rules that determine which documents or resources are cached in the cache memory 124." See Burns at col. 10, line 48-52. Burns discloses examples of caching rules: "caching resources that are routinely requested by many subscribers, but foregoing caching resources that are rarely or infrequently requested." See Burns at col. 10, line 52-58. See also Burns at col. 7, lines 61-65 (describing Figure 4 as showing a functional block diagram of a local Internet service provider).

As such, the policy manager 128 of Burns uses electronic information to determine whether to cache the target resource. Hence, the cited portion of column 8 does not disclose anticipating a demand based on non-electronic information. Nor does the cited portion of column 8 disclose measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests where the criteria includes non-electronic information, as recited in claim 96.

Third, with regard to the cited portion of column 9, Burns discloses a pattern recognizer and a scheduler:

The pattern recognizer 116 monitors the patterns of the subscriber requests to determine which content is most frequently requested and when (step 150 in FIG. 5). From these patterns, the pattern recognizer 116 can identify peak times in subscriber traffic and the relation of the peak times to specific requested content (step 152). For instance, suppose that a high number of subscribers frequently request the CNN Web page during the morning hours of 6:30 AM to 8:00 AM. These requests translate into a high number of URL hits for the CNN Web page which are recorded by hit recorder 112 in the URL hit database 114. The pattern recognizer 116 recognizes this recurring pattern of requests for the CNN Web page and identifies the peak time for this Web page to be between 6:30 AM and 8:00 AM.

Using the patterns identified by the pattern recognizer 116, the scheduler 118 schedules delivery of the content at a selected time prior to the peak time

(step 154 in FIG. 5). In this example, the scheduler 118 might schedule delivery of the CNN Web page at a time prior to 6:30 AM. For instance, the scheduler 118 might schedule a request for the CNN Web page at 6:00 AM to provide sufficient time to download that page before the earliest subscribers are expected to begin asking for it, yet not too early to ensure that the latest news is included.

Burns at col. 9, lines 12-34.

In the cited portion of column 9, Burns discloses the use of a pattern recognizer 116 to monitor electronic requests of subscribers to determine the most frequently requested content. Burns' pattern recognizer 116 is an electronic component of a local Internet service provider system. See Burns at Figure 4 (showing the pattern recognizer 116) and col. 7, lines 61-65 (describing Figure 4 as showing a functional block diagram of a local Internet service provider).

The cited portion of column 9 also discloses a scheduler 118 that schedules delivery of the content at a selected time prior to the peak time based on patterns identified by the pattern recognizer 116. Burns' scheduler 118 is an electronic component of a local Internet service provider system. See Burns at Figure 4 (showing the scheduler 118) and col. 7, lines 61-65 (describing Figure 4 as showing a functional block diagram of a local Internet service provider).

The cited portion of column 9 discloses that both the pattern recognizer 116 and the scheduler 118 use electronic information. The cited portion of column 9 does not disclose anticipating a demand based on non-electronic information. Nor does the cited portion of column 9 disclose measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests where the criteria includes non-electronic information, as recited in claim 96.

With regard to the cited portion of column 11, Burns discloses a pattern recognizer:

The local service provider 110 also maintains a subscriber database 130 which stores lists of subscribers (or LAN users in the LAN configuration) and pertinent information about them (e.g., routing addresses, billing addresses, etc.). A usage reporter 132 uses the URL hit information from the URL hit database 114 and subscriber information from the subscriber database 130 to generate reports on subscriber usage patterns. These reports can be used by the operator to efficiently allocate computer resources to best satisfy the needs of its clientele. The reports can also be used by content providers to help them assess the popularity of their Web sites and the type of subscribers who visit them....

The Internet/ISP connection is often the bottleneck for streaming data and is typically the connection least likely to be upgraded due to economic factors surrounding the business of the ISP. Although not required, in this implementation, the content may be pushed top down from the content provider over the Internet and thus, the system may be referred to as a "push-caching" system.

Network system 200 is similar to the configuration of the FIG. 2 network system 50 in that it has a content server 52 which serves content over a high-speed, high-bandwidth network 54, to local ISPs 56, to end users 58 and 60.

Burns at col. 11, lines 20-31 and 56-64.

In the cited portions of column 11, Burns discloses the use of a subscriber database 130 that is used to produce reports on subscriber usage patterns and pushing content from the content provider. The cited portions of column 11 does not disclose using non-electronic information and, hence, cannot disclose anticipating a demand based on non-electronic information. Nor does the cited portions of column 11 disclose measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests where the criteria includes non-electronic information, as recited in claim 96.

Accordingly, for at least the reasons described above, Burns fails to describe or suggest anticipating demand based on at least non-electronic information, as recited in claim 96. Moreover, Burns does not describe or suggest measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests. For at least these reasons, appellant requests reversal of the § 102 rejection of independent claim 96 and claims 97-99, which depend directly or indirectly from claim 96.

Independent Claim 75 and Dependent Claims 53-57, 61, and 76-80

Claim 75 is directed to a method for making electronic information more readily available to one or more first access requestors based on an anticipated demand for the electronic information. The method includes anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information. Non-electronic information may be indicative of popularity of a topic associated

with the electronic information (as recited in claim 76), may be the popularity for a class of access requestors (as recited in claim 77), or may be indicative of past requests for information similar to the electronic information (as recited in 78). The method also includes determining to duplicate electronic information from a data source to a storage medium that is more accessible to the first access requestors based on a size of the electronic information and on the anticipated demand, accessing the electronic information stored on the data source, and duplicating the electronic information to the storage medium.

For at least the reasons noted above with respect to the § 102 rejection of independent claim 96, Burns does not describe or suggest anticipating a demand for access to electronic information based on non-electronic information related to the electronic information, as recited in claim 75.

Accordingly, appellant requests reversal of the § 102 rejection of claim 75. At least for their dependency on claim 75, appellant requests reversal of the rejection of dependent claims 53-57, 61, and 76-80.

Independent Claim 62 and Dependent Claims 2-4, 6, 7, 9, 11-13, 63-66, 81 and 84-87

Claim 62 is directed to a method for making electronic information more readily available to one or more access requestors. The method includes anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. The method also includes identifying for transport electronic information stored at a data source, transporting the identified electronic information from the data source to a requesting access requestor, determining, based on a size of the electronic information and the anticipated demand, to store the already identified and transported electronic information on a storage medium that is more accessible to the access requestors than the data source, and storing the transported electronic information on the storage medium.

For at least the reasons noted above with respect to the § 102 rejection of independent claim 96, Burns does not describe or suggest anticipating a demand for access to electronic information based on non-electronic information related to the electronic information, as recited in claim 75.

Accordingly, appellant requests reversal of the § 102 rejection of claim 62. At least for their dependency on claim 62, appellant requests reversal of the rejection of dependent claims 2-4, 6, 7, 9, 11-13, 63-66, 81 and 84-87.

Independent Claim 67 and Dependent Claims 17-19, 21, 22, 24, 26, 27, 68-70, 82 and 88-91

Independent claim 67 recites a system for making electronic information more readily available to one or more first access requestors. Claim 67 includes an anticipating software module that anticipates a demand of the first access requestors for access to electronic information based at least on non-electronic information related to the electronic information.

As described above, Burns does not describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. For at least the reasons described above, appellant requests reversal of the § 102 rejection of claim 67. At least for their dependency on claim 67, appellant requests reversal of the rejection of dependent claims 17-19, 21, 22, 24, 26, 27, 68-70, 82 and 88-91.

Independent Claim 71 and Dependent Claims 31-33, 35, 36, 38, 40-42, 72-74, 83 and 92-95

Independent claim 71 recites a computer readable medium having a code segment for anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information.

As described above, Burns does not describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. For at least the reasons described above, appellant requests reversal of the § 102 rejection of claim 71. At least for their dependency on claim 71, appellant requests reversal of the rejection of dependent claims 31-33, 35, 36, 38, 40-42, 72-74, 83 and 92-95.

For at least the reasons described above, the § 102 rejection of claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 should be reversed.

b. Claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 53-57 and 61-99 are not properly rejected under 35 U.S.C. § 103(a) as being unpatentable over Pirolli in view of Malkin.

Appellant requests reversal of this rejection because Pirolli, Malkin or any proper combination of the references does not describe or suggest the subject matter of the independent claims 62, 67, 71, 75 and 96, as described more fully below. For example, neither Pirolli or Malkin describes or suggests anticipating a demand of the access requestors for access to electronic information based at least on non-electronic information related to the electronic information. In the argument below, first the disclosures of Pirolli and Malkin are discussed with regard to anticipating a demand for electronic information based on non-electronic information. Second, the independent claims are discussed in the following order: claims 62, 67 and 71, claim 75, and claim 96.

The Office action of March 4, 2005 interpreted non-electronic information “to mean any metadata that are related to the content of electronic information but are not the content of the electronic information itself.” See Office action of March 4, 2005 at page 21, lines 7-9. As noted above with respect to the anticipation rejection, metadata is not necessarily non-electronic data and, in any case, is not relevant to the rejection as the term “metadata” does not appear in the claim language or any of the applied references. Based on the above-articulated misunderstanding of the term “metadata,” the Office action of March 4, 2005 found appellant’s arguments with regard to Pirolli and Malkin unpersuasive and maintained the rejection. See Office action at page 21, lines 3-15. For example, the Office action’s response to appellant’s arguments contends that “the recency of document use and the frequency of document use disclosed in Pirolli are not the content of the electronic information but are metadata information that are related to the content of the electronic information.” See Office action of March 4, 2005 at page 21, lines 9-12. Similarly, the Office action’s response to appellant’s arguments states that “the data access patterns and object size used for pre-fetching electronic information disclosed in Malkin are also not the content of the electronic information but are the metadata information that are related to the content of the electronic information.” See Office action of March 4, 2005 at page 21, lines 12-15. Regardless of whether Pirolli and Malkin each disclose electronic information that is related to the content of electronic information, appellant again

strenuously points out that Pirolli, Malkin or their proposed combination do not describe or suggest anticipating a demand for electronic information based on non-electronic information, as described more fully below.

Turning to the disclosures of Pirolli and Malkin, Pirolli discloses prefetching and caching an electronic document based on a “need probability” that is computed for the electronic document. See Pirolli at Abstract. Pirolli’s need probability is computed based on a document content factor and a document history factor. See Pirolli at Abstract. The content factor of Pirolli’s need probability is determined by computing the correlation between words in the document and a set of electronic documents (e.g., web pages) associated with a user (or a client computer used by a user). See Pirolli at Abstract and col. 8, line 51 to col. 9, line 16. Pirolli refers to the set of electronic documents to which words in a particular electronic document are compared as a “content Q of the operating environment.” See Pirolli at col. 8, lines 51-62. Hence, Pirolli discloses using electronic information (i.e., words in the electronic information and other electronic documents) to determine a content factor of the need probability used to anticipate demand for a particular electronic document.

Furthermore, the document history factor of Pirolli’s need probability “is determined by integrating both the recency of document use and the frequency of document use.” See Pirolli at Abstract. Pirolli discloses determining the number of days since an electronic document was last accessed and the frequency of accesses of the electronic document over a period of days. See Pirolli at col. 8, lines 1-32. Pirolli describes collecting this data from web proxy logs and web sites. See Pirolli at col. 8, lines 41-45. Hence, Pirolli determines the history factor, like the content factor, based solely on electronic information.

Although Pirolli discusses a proxy server that “services a community of users that share shome interests or some mission,” Pirolli does not use membership in a community of users as a basis for anticipating demand. See Pirolli at col. 11, lines 37-51. More particularly, Pirolli states:

By prefetching and caching those documents with the greatest need probability, the proxy server tunes its local cache to retain those documents which are most needed by the community of users.

Pirolli at col. 11, lines 48-51.

Even when servicing a particular community of users, Pirolli's process to prefetch and cache an electronic document remains the same – namely, a need probability is computed using only electronic information.

Pirolli discloses, in the background of the invention, that “[t]he best way to optimize caching on a client computer is to define a set of documents that best predicts which documents are to be accessed by a user in the future” and store “the documents predicted to be in the set” in the cache. See Pirolli at col. 1, lines 50-54. Pirolli describes techniques to do so. As described above, Pirolli discloses prefetching and caching an electronic document based on a “need probability” that is based on a document content factor and a document history factor and is computed for the electronic document. Pirolli does not describe or suggest using non-electronic information as a basis for caching.

Thus, Pirolli does not describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information.

Malkin does not remedy Pirolli's failure to describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. Malkin discloses techniques for prefetching electronic information by identifying data access patterns from a large number of current users and prefetching electronic information based on a dynamic interpretation of the data access patterns. See Malkin at Abstract and col. 8, lines 38-55. Malkin also discloses prefetching electronic information based on object size and criticality derived from data access patterns. See Malkin at col. 8, lines 22-29 and col. 9, lines 3-19 (describing how prefetch hint information for a data object is computed based on data access patterns and includes criticality information). As such, Malkin discloses only prefetching electronic information based on only the use of electronic information.

Thus, Malkin does not describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information.

The advisory action, without citation, maintains that “Pirolli[] and Malkin disclosed several embodiments and although, in one embodiment they did disclose pre-fetched catching

[sic, caching] based on electronic information criteria, they also disclosed in their other embodiments pre-fetched catching [sic, caching] based on none-electronic information criteria, unrelated past request, etc." See Office action of June 24, 2005 at page 4, line 9-13. Appellant disagrees for the reasons described above.

Each of Pirolli and Malkin fail to show anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. Thus, necessarily the proposed combination of Pirolli and Malkin fails to describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information because the constituent references of Pirolli and Malkin each fail to show the anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information.

Independent Claims 62, 67 and 71 and Dependent Claims of Claims 62, 67 and 71

Appellant requests reversal of the § 103 rejection to claims 62, 67 and 71 because neither Pirolli, Malkin or any combination of the two references describes or suggests anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information.

As described previously, Pirolli and Malkin fail to show anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information. Thus, necessarily the combination of Pirolli and Malkin fails to describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information because the constituent references of Pirolli and Malkin each fail to show the recited limitation.

As described previously, each of independent claims 62, 67 and 71 recites anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information.

For at least the reasons described above, appellant requests reversal of the § 103 rejection of independent claims 62, 67 and 71 and their respective dependent claims 2-4, 6, 7, 9, 11-13, 17-19, 21, 22, 24, 26-33, 35, 36, 38, 40-42, 63-66, 68-70, 72-74 and 81-95.

Independent Claim 75 and Dependent Claims of Claim 75

Appellant requests reversal of the § 103 rejection to claim 75 because neither Pirolli, Malkin or any combination of the two references describes or suggests anticipating a demand of the access requestors for access to the electronic information based at least on non-electronic information related to the electronic information, as recited in claim 75.

As described previously, neither Pirolli, Malkin nor any proper combination of the reference describe or suggest anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information.

For at least these reasons, appellant requests reversal of the § 103 rejection of claim 75. At least for their dependency on claim 75, appellant requests reversal of the § 103 rejection of dependent claims 53-57, 61, and 76-83.

Independent Claim 96 and Dependent Claims of Claim 96

Appellant requests reversal of the § 103 rejection to claim 96 because neither Pirolli, Malkin or any proper combination of the two references describes or suggests measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information, as recited in claim 96.

The Office action repeats the contention that “the method of populating the distributed cache and its limitations are similar to the method for making electronic information more readily available to one or more first access requestors of claims 75-78 and thus these claims are rejected using the same rationale.” See Office action of March 4, 2005 at page 18, lines 6-10. As noted previously, appellant respectfully disagrees and notes that claim 96 recites measuring an anticipated demand for the first electronic asset based on criteria that is collected before receiving requests for access to the first electronic asset and that is unrelated to past access requests, the criteria including non-electronic information, which is a limitation not found in claims 75-78.

As described above, neither Pirolli, Malkin, nor any proper combination of the references describes or suggests anticipating a demand of access requestors for access to electronic information based at least on non-electronic information related to the electronic information.